

CONTRACT FILE

PAR 231

Proj. # 5048

10-20-40 COLOR LAMPHOUSE

Declass Review by NGA.

14 October 1964

PROJECT AUTHORIZATION REQUEST

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SUBJECT: 10-20-40 Color Lamphouse

TASK/PROBLEM

1. Design, fabricate and test a lamphouse for the 10-20-40X Precision Enlarger to provide convenient color-balance control in making color prints on enlargers equipped with suitable objective lenses.

PROPOSAL

2. The availability of new color photographic materials and increasing PI interest in the use of color photography makes it desirable to adapt the 10-20-40X Precision Enlarger to make high-quality color prints. The enlarger was built to expose black-and-white prints with a narrow spectrum band centered about 4200A wavelength. Development work to provide high-quality objective lenses corrected for making color prints is being done on other projects.

3. It is proposed to explore the possibility of providing a replacement unit for the present 10-20-40 Precision Enlarger lamphouse with features allowing convenient procedures in exposing high-quality color prints.

4. Current development work and past experience in color printing have indicated that superior color quality in the prints is obtained by narrow band tri-color exposure. Sequential exposure of the three bands will be used.

5. General Approach: The design of the proposed color lamphouse will be directed to provide the following features:

a. Lamphouse: The color lamphouse will be physically interchangeable on the same mounting surface as the present one. Simplicity of the interchange will be a prime consideration.

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b. Auxiliary Color Printing Control Unit:

(1) A unit containing three variable transformers will be provided.

(2) The unit will contain related switching to interlock the use of a given transformer to supply power to the enlarger lamp with the presence of a particular color filter in the lamphouse optical path.

(3) The three transformers will be set, before placing the color print stock on the easel, to provide the desired relative exposure levels (color balance) through the red, green, and blue filters with equal exposure time through each filter.

c. Measurement and adjustment of the required exposure level and color balance for printing a given color original will make use of the Model EP-1000 photometer supplied as a part of the original equipment of the 10-20-40X Enlarger.

STAT

d. Starting and ending photographic exposures will be done as in the present arrangement, by turning on and turning off the enlarger lamp. The decade timer available in the enlarger control unit will be used to time the exposures.

e. The exposure cycle for a color print will require the filter holder to be manually operated to insert the three filters in turn with manual initiation of the timer cycle for each filter.

PROGRAM OBJECTIVES

6. The program objectives are:

a. Design and fabricate a lamphouse for the 10-20-40 Precision Enlarger to provide convenient color-balance control in making color prints.

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- b. Test and evaluate.
- c. Furnish a final report with conclusions and recommendations.

SCHEDULE

7. A tentative schedule covering major phases of effort is shown in Figure 1. The time span indicated to complete the subject program is based on actual start of work. Upon approval to proceed and/or start of work, schedule will be reviewed and necessary changes reported as required.

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10-20-40 Color Lamphouse

MONTHS

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

1. Design

a. Layout & Detail

0-----#

b. Electrical
Engineering

0-----#

c. Fabricate

0-----#

d. Assemble

0-----#

2. Test & Evaluate

0-----#

3. Reports

a. Informal Reports

⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗

b. Quarterly Reports

⊗ ⊗ ⊗ ⊗ ⊗

c. Final Report

0-----#

KEY: 0 - Start
- Complete
⊗ - Deliver